TRANSY

approach

AUGUST 1983 THE NAVAL AVIATION SAFETY REVIEW

SECNAV on safety

First Impressions

MY squadron was just getting ready to embark for REFTRA when my orders came in the mail. I was to report to the Safety Center as the new editor of *APPROACH*. Looking at another set of workups, I needed some good news, and that did nicely. I had been reading the magazine for five years and liked it a lot because it put out important information about flying and made it *interesting*. When I had heard the billet was open, I lobbied for it and finally it was official.

I couldn't help wondering though, why the job was going to an A-6 B/N. Why not a PAO type, since writing is involved? Why not an AEDO or TPS graduate who had flown a lot of different aircraft and had a deeper understanding of flight systems? I hadn't even been an ASO!

Now that I have one whole issue under my belt, I have been able to answer those questions, at least to my own satisfaction. The Safety Center has resident experts on everything from magazine production to aircraft systems and aerodynamics. In addition to many other duties, they do a good job of making sure *APPROACH* is technically correct.

The major portion of this editor's job is to be your representative, one of the rank and file of Naval Aviation. The last editor was a H-46 pilot; the one before him was a P-3 TACCO. Who knows, maybe it will be a *Harrier* driver next time. Whoever happens to sit at this desk is here to make sure that *APPROACH* stays on top of safety issues you need to know about, based on your inputs. The address and phone number are in each issue, and I invite you to keep in touch.

LT John Flynn
APPROACH Editor

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inside approach

Vol. 29 No. 2

SECNAV straps in for a flight in an A-6. Photo by PH1 Bill Breyfogle.

FEATURES

DEPARTMENTS AND STORIES

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An

INTERVIEW

with the Honorable John F. Lehman, Secretary of the Navy

By LT John Flynn
APPROACH Editor

This interview took place on 20 June 1983 at NAS Oceana, Virginia. The Secretary was undergoing two weeks Acitve Duty for Training as a Commander in the Reserves. He is qualified as a bombardier-navigator in the A-6 aircraft, as well as a pilot in H-1 helicopters. It is noteworthy that no corners have been cut with regard to Commander Lehman's flying qualifications: His NATOPS, physiology, instrument quals, etc., are all kept up to date.

. . . we used to lose 700 aircraft a year in peace-time . . .

APPROACH: Mr. Secretary, an old adage of Naval Aviation says that safety improvements are "written in blood," meaning that they only occur as a result of accidents. At your level, to what extent is money for safety items tied to the accident rate?

SECNAV: The accident rate does not determine the amount of money for safety. It really is well beyond any kind of relationship like that. Well, let's back up.

We have made enormous progress, steady progress in the last 30 years, every year. Back in the 50's, we used to lose 700 aircraft a year in peacetime training accidents. In one year, I think it was 1953, we had more than 2,200 mishaps in peacetime training. Of course we are way, way below that now, and we just completed the two safest years in Naval Aviation history. We think that the safer we get, the more we learn how to be safe, and the more we learn the areas to concentrate on.

We really believe we can continue to make progress every year to get that rate per 100,000 flying hours down lower than the year before. And really, when you think of it, and look at the contributing causes of accidents, there is no reason why we shouldn't be able to do that. The increase in the level of technology of micro circuits, computers is much better at fault isolations, at finding material weaknesses in the aircraft before they happen. And our personnel — the quality of our personnel is steadily improving. We continue to attract better and better people. We are able, through project upgrade and through early outs, to get rid of the

nonperformers, the people who can't measure up to the new levels of quality that we require, so that the human contribution to the accident rate is steadily improving.

The quality of the aviators is improving steadily with the aviation bonus, higher retention and better training. The training command is improving its own techniques in training better aviators, and identifying problems that aviators exhibit, correcting them or moving them out of aviation and into other things.

So all of these things are getting better and *should* get better because the technology and the human side of it are always improving and we build on what we learn the year before. It is not a question of allocating money because almost unlimited money is available. If there is a problem we become aware of, a problem that is safety related, there is never a shortage of money to deal with it. When you look at the price of an airplane today, we are paying 34 million dollars for an F-14 and to lose one F-14 for want of a screw that is the wrong size or because of an unqualified personnel action is just intolerable. So it's not really related to money.

APPROACH: If by some strange turn of events, you found yourself as CO of a fleet squadron, what sort of programs would you institute to improve your command's safety posture?

SECNAV: Well, first of all, it wouldn't be such a strange turn of events, because last year I screened for command of a reserve squadron, and one day, if I am ever out of this job, I would like to do that. If that reserve squadron were ever activated, then it would not be inconceivable that I could be in that situation. However, since I intend to stay in this job as long as Admiral Gorshkov — 28 years, that may be a while coming before that happens.

I think that, really, the squadron commander is the single most important link in the safety chain, without question. It is not something that you can quantify and not something you can put out in a formula. It really boils down to leadership. The squadron commander must know his people and know how to identify practices and attitudes that lead to accidents, that lead to the breakdown in safety. The old adage that accidents don't happen — they *build,* is very valid, and the squadron commander is the one man who has to have all of the visibility, all of the feel as to what is going on in his unit in maintenance, in training, in personal problems of the aviators, in skill levels and in overall professionalism. You can't put that into a computer; you cannot put out a checklist or a formula for it. It really boils down to leadership, and we can and must continue to do all we can technically to support it through analysis, studies and keeping the NATOPS system up to speed. But it really all boils down to the squadron commanders, in my judgment, as the single most important factor in safety.

APPROACH: In the NFO Training Pipeline, the T-39s are now being flown and maintained by civilians, and there seems to be a trend to turn more and more defense activities over to civilian activities. What impact will this have down the road on fleet aviators? Will there be less flying jobs on

. . . the squadron commander is the single most important link in the safety chain . . .

shore duty and will the influence of fleet experience start to disappear from support activities?

SECNAV: Well, the Reagan Administration has a strong bent to make the government as small as is practical and to get more of the activities that are currently done by the government into the private sector, so we are under pressure to contract out as much as is practical of what we do now. Turning over functions in support of fleet aviation, turning them over to contracting, has been done in a variety of ways, and it has worked out very practically. The work done down in Pensacola with Burnside Ott and others in contracting out some of the simulators, the classroom instruction, the simulator instruction and flying the business type aircraft that we use in NFO training, is also proceeding. I think that's good. It has been successful, and it relieves the system of some requirements without cutting into the professional training base that we need in shore billets. Let's face it, the kind of hops that are used in VT-86 and VT-10, other than tactical A-4 and T-2 FAM-type hops, are not particularly useful training for fleet aviators. So turning over those target tow tractor kinds of missions, and flying intercept targets, that kind of thing, seems natural. But there is a limit, and we don't intend to turn over the key professional training of our force to civilians. The instructors in RAGs will never be civilianized. The people who fly some of the training like dissimilar adversary aviation; those with key, uniquely military skills will not be civilianized. There is a role for increased contracting out, but it has to be done selectively and carefully.

... NATOPS is one of the best systems in any military service ...

APPROACH: What do you see as the priorities in aviation safety at your level and what sort of things can we see down the road as a result? I'm mostly thinking about aeromedical research, improved training, improved flight gear and things like that?

SECNAV: Well you have mentioned a good number of them. I think that we have a very strong feeling. When I say we, that is the Chief of Naval Operations, the Commandant of the Marine Corps and I, feel very strongly, and all of us are reemphasizing, that leadership is above everything. That is the factor that has to be looked to first for safety as in every other aspect of military professionalism and no amount of analyzing and quantifying, and no amount of investment in technology, will be able to compensate for variations in the quality of leadership. But the material contributions to safety are amenable to the application of modern data processing and signal processing and analytical technology that is coming into the fleet, that can identify potential material failures before they happen, and we intend to continue to invest more in that. We would like to eliminate material failure as a substantial safety problem. Human engineering/Aeromedicine is also important as well, but frankly I think there is more payoff in advances in the material side. There is more to be gained because we know relatively less about the problems and can do more about them with the technology at hand than we can with the human engineering kinds of things.

I think there is a lot of progress that can be made in

personal equipment. I think the Navy lags behind to a certain extent some other countries and some of the other services here in personal equipment. Of course there are reasons for that. Our environment is tougher. Operating around the aircraft carrier makes it more difficult to make shifts to newer kinds of personal equipment. But I think that the rate of survival for people who eject successfully out of naval aircraft over water, but don't survive the water, is too high. We need to do better. I think we have made real progress in the last three years improving the water survival training and the emphasis on it, but I think the personal equipment, the survival equipment, could be improved and get that (survival) rate higher. These are all areas where I think there is a lot of progress to be made in the future.

APPROACH: Where is the ACLS program going, and how will it enhance carrier operations?

SECNAV: Well, it is installed on all of our production aircraft, and I think it is an important backup system, but still the aviator is, and will remain, the primary landing system on the carriers for the years ahead. We don't foresee any shift to making ACLS the primary recovery, but it is important that we keep the systems up, and the aviators current. As we move toward more and more data linking anyway, there will be more emphasis on keeping the equipment up and operating for other tasks.

APPROACH: In addition to what is specified in NATOPS and SOP, etc., do you have your own personal safety program to keep Commander John Lehman out of the dirt?

SECNAV: (Laughing) Yes, particularly in the kind of flying that I do, I have too many long periods out of the cockpit, and I do fly a lot of different kinds of aircraft. I stay current as a pilot in Hueys. I fly that probably more than any other airplane, and I feel fairly confident in that airplane because I fly it so much — couple of times a week, often, and I feel confident in emergency procedures, and so forth. I guess in the last three months I have flown, what, 10 different kinds of airplanes: the F-16, F-5, F-18, British Tornado, H-1J, H-1T, CH-53E, SH-2 and SH-3. So as a result, I am in and out of so many, it is too easy, particularly in my own case, to get complacent. Particularly, there is a danger in my position as SECNAV. A younger aviator flying with me may be too deferential to me, so I have to be especially on my toes not to assume too much in my own skill level, and not to become overbearing with an aviator that I am flying with. It is not a problem, but something I have to be especially careful of.

I think NATOPS is one of the best systems in any military service. It has evolved over the years the hard way, as you say, through a lot of blood and a lot of treasure and tears lost. But it's a superb system, and it really kind of embodies the distilled wisdom. It is not a lot of "(chicken scratch)" and some bureaucrat's idea of what safety requires. It is the hard wisdom of the operational fleet, and it is a fine system. I think the Navy has the best system of any military service that I have seen.

. . . the Navy lags behind to a certain extent, some other countries and some of the other services here, in personal equipment . . .

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Canopy Closure Incident. High winds, heavy seas, light rain and blowing salt spray greeted the KA-6D crew on the CV flight deck during their pre-dawn manup.

Prior to engine start, the canopy was closed to within five inches of the fully closed position to avoid saltwater cockpit intrusion. However, the partially closed canopy situation was not discussed between the flight crew. Following port engine start, the pilot conducted normal bleed air checks. At this point, he placed his hand through the gap in the open canopy to check for rain removal air flow. Just prior to this, the bombardier navigator (BN) called for canopy closure anticipating acknowledgement from the pilot. The BN then actuated the canopy to the closed position.

Feeling pressure from the canopy, the pilot rapidly withdrew his left hand, but the tips of his two middle fingers failed to clear the lower portion of the canopy. The force of the canopy caused a fracture of the tip of his left ring finger and a soft tissue injury to his middle finger.

This incident led the squadron to take the following corrective action:

- Require verbal acknowledgement by both crewmembers before any canopy movement.
- Avoid partially closing the canopy.
- Periodically retrain all flight and maintenance personnel on the inherent dangers associated with aircraft canopy operation.

The dangers of aircraft canopy operation and partial canopy closure are well documented. This unit and the individuals involved are fortunate more serious injury did not occur. Any part of the human body is no match for the structural strength of a canopy and power of a hydraulic actuating cylinder. All aviation units operating aircraft with canopies should bring this incident to the attention of all personnel who might have reason to be around a cockpit. **Canopies on A-6/EA-6B aircraft have always represented a severe hazard to personnel. Every precaution must be taken to prevent inadvertent closing of canopies on personnel, both flight and ground. — Ed.**

Single-engine Save. It had been a routine postmaintenance functional checkflight for the replacement of the No. 1 engine on an SH-3H helicopter. Engine topping and power checks were complete and it looked like a 4.0 bird. HS-8's LCDR Bill Bashore and his copilot, LTJG Mike Schiffer, proceeded out to sea to give the aircraft a complete shakedown and ensure it was fully mission-capable for tomorrow's fly-aboard.

The systems checks proceeded normally. A dip check was completed, the sonar dome seated and crewmember AW3 Trace went aft to conduct a hover trim check. Petty Officer Trace reported the check complete and was strapping in when the crew heard a series of rapid bangs. The rotor RPM decayed below 90 percent N_r as the aircraft started to settle to the water. LCDR Bashore eased the nose over slightly in an attempt to gain flying speed while LTJG Schiffer, realizing the gravity of the situation, activated the fuel dumps, selected full power and broadcast a distress call. Recognizing that the No. 1 engine was experiencing compressor stalls but was still developing some power, it was left on the line. Having stabilized rotor RPM, at 92 percent, LCDR Bashore continued to work on gaining flying speed. Obtaining safe single-engine airspeed, he climbed out to safe autorotational altitude. The No. 1 engine was brought to IDLE, and an attempt was made to put the engine back on the line. But it continued to experience compressor stalls. The engine was then secured and the crew executed a single-engine landing at NAS North Island.

The professional flying skills of LCDR Bashore, and the superb coordination exhibited by the entire crew, prevented an unscheduled water landing and possible major damage to a valuable fleet asset. For their efforts, Attaboys are deservedly awarded to LCDR Bashore and his crew.

How Not to Win Friends. Here's another hairy tale about flammable

and toxic materials being loaded aboard a naval aircraft for shipment.

Shortly after launching from a CV, the C-2A loadmaster detected a strong odor coming from some cruise boxes which had been loaded aboard the aircraft for shipment. The aircraft commander assessed the situation, and after complying with prescribed NATOPS procedures, elected to continue on to homebase.

A postflight inspection of the cruise boxes revealed that the shipment consisted of paint resins. The volatile solvents contained in the resins have a flash point of 27°F, and the harmful fumes emitted by the leaking resins could have resulted in anything from minor illness to death of the aircrew and passengers. Additionally, the low flash point of the solvents increased the potential for an inflight fire.

This incident should never have occurred. It came about because of a total breakdown in communications between the shipper, via the air transportation officer, and most importantly, the aircraft loadmaster. Five of the six cruise boxes contained flammable liquids, but only two were marked as such, and neither were loaded aboard the C-2 by the loadmaster or plane captain. The boxes were stacked in such a manner that the warning labels were not visible.

We've said it many times before, but we'll say it once again — until naval aviation complies 100 percent with the directives established for transporting hazardous materials, we're leaving the cargo door open for an eventual aircraft catastrophe. It's obvious from this incident that we can't solely rely on the shipper to provide the necessary warnings. We ask that all of you involved with the air transport of cargo, hazardous or otherwise, make a firm resolution to ensure that it meets the safety requirement for shipment, and that it is properly loaded onboard the aircraft

Leaving the Door Open. An A-6E aircrew readied themselves for a morning departure from NAS South to NAS Homebase. A normal brief and preflight were conducted in preparation for the flight. Manup, start and taxi to the duty runway were uneventful. The takeoff roll was normal, and no unusual indications were noted.

With the aircraft airborne at 140 KIAS, the landing gear was retracted. The aircrew immediately detected that the port main landing gear indicated unsafe (barber poled), while the nose and starboard landing gear showed up. The pilot left the flaps down, held airspeed at 170 KIAS and placed the landing gear handle down. The port landing gear remained barber poled while the nose and starboard gear indicated down and locked. The NAS Tower was notified of the problem, and the A-6 was cleared to proceed to a safe area and altitude.

After referring to the NATOPS PCL, the landing gear was again raised and then lowered with no change in the port landing gear status. At this time, the pilot noticed the port engine bay access door fully open in the airstream. All attempts to obtain a down and locked indication on the port gear by the application of positive and negative G and yaw, and repeated cycling of the landing gear handle, had no effect. Another aircraft made a visual inspection and confirmed that the port engine access door was open **and resting against the forward port main landing gear door.** The port main mount was in the wheelwell being held up by the engine bay access door. Additional attempts were made using G forces and yaw to dislodge the gear, but they were not successful.

The decision was made to burn fuel down to 2,000 pounds and make an arrested landing at NAS South. A local LSO was contacted, and he arrived on the scene. Shortly thereafter, the pilot made his approach for landing, and the A-6 touched down 600 feet short of the E-28 arresting gear. With three units of right rudder trim, the pilot was able to keep the left wing off the deck until engaging the arresting gear. The aircraft came to a full stop; engines were secured, and the crew egressed the A-6 normally.

Witnesses had observed the port landing gear to partially extend as the aircraft slowed down following engagement. The gear fully extended in the down and locked position when the aircraft was raised by the crash crane.

This expensive mishap occurred because both pilot and BN failed to ensure that the engine access door was positively latched by examining the door locking pins as required by NATOPS. The mishap squadron's SOP requires that, when its maintenance personnel are launching aircraft, access doors are left open until engine start to check for fuel, oil and bleed-air leaks. Maintenance personnel then close the access doors and check the locking pins for security. Under any other circumstances, flight crews must preflight these doors as specified in NATOPS.

This mishap should prompt other A-6 squadrons to reemphasize the criticality of thoroughly preflighting their aircraft, especially at fields other than homebase and under out-of-the-ordinary operating conditions. In fact all aviation units should emphasize this point through policy, SOP and periodic briefings.

SPINTAC Strike

By Richard A. Eldridge
APPROACH Writer

THIS is the story of an aircraft which hadn't flown in 425 days and had logged only 4.7 flight hours in the past 605 days. On the day it finally did fly, it flew for 14 minutes — but not very well. Its final resting place was an uninhabited swamp, 12 miles from the point of takeoff. The pilot survived without injury by ejecting.

The aircraft was a TA-7C and had been in Type A preservation for slightly more than nine months before being depreserved. The time from depreservation until the crash was just over four months. In the two months prior to the mishap, 815 organizational level maintenance man-hours were expended in depreserving the aircraft and preparing it for flight.

When originally cocooned, the aircraft was preserved without an installed engine. Before the mishap flight, the engine which had been installed was rejected because of high oil consumption. However, the two hydraulic pumps from the rejected engine were reinstalled on the engine used on the mishap flight.

Before the flight, the pilot was briefed on the aircraft's status including the fact that it hadn't flown in 425 days. He was given a full PMCF (Post Maintenance Check Flight) checklist and told to "Do as much of this as you can." It was neither a proper nor full brief for a functional checkflight. In addition, the pilot was told that the TA-7 would be down after the flight to remove the aircraft from SPINTAC (Special Interest Aircraft) status. After noting that the aircraft was fueled only to 5,600 pounds (not a proper fuel load for a PMCF), the pilot gave the PMCF checklist back to Maintenance Control and remarked that he would enter the GCA pattern at the field.

. . . I'm ejecting at this position, right *NOW!*

Prestart, start and taxi were uneventful. The pilot executed a normal takeoff, raising the gear and flaps. Because the TA-7 had been SPINTAC, he debated leaving the aircraft dirty while in the GCA pattern, but decided against it. He entered the pattern with the intention of making a number of GCAs before his full stop landing. As he rolled wings level on his first approach, five miles from the runway, the MASTER CAUTION light illuminated. He noted the hydraulic pressure CAUTION light illuminated with the PC-1 hydraulic gauge reading 0 psi. He aborted the approach and turned away from the runway to execute NATOPS procedures for loss of the PC-1 hydraulic system. He informed radar control that he had lost his PC-1 and wanted to leave the frequency to confer on the squadron base radio. While conferring with the squadron, he advised that he had good PC-2 hydraulic pressure. He stated that he was monitoring the PC-2 system closely because he realized that the MASTER CAUTION would not illuminate if the PC-2 failed. However, he never selected ISO (isolation) utility or used the emergency gear and flap accumulators.

Shortly after returning to the radar control frequency, the PC-2 system failed with the aircraft level at 1,700 feet and 150 knots. The pilot felt the controls get mushy with no aircraft response to stick movement. He deployed the EPP (Emergency Power Package) and moved the emergency generator switch to OFF to provide maximum hydraulic pressure. At this point, the TA-7 entered an uncontrollable nose-down, right-wing down attitude. Moments later he transmitted, "I'm out of controlled flight, and I'm gonna be ejecting at this position right *now.*" At ejection the pilot estimated he was at 1,100 feet, 150 KIAS, 20-degrees nose down and 25-degrees right-wing down. His ejection was successful, and he landed in a small clearing near the crash site.

He attempted to use his PRC-90 survival radio but found it to be inoperable. After spreading out his parachute in the clearing and standing on it, he was spotted by an airborne aircraft vectored to the site. He was soon rescued by a SAR helo.

In retrospect, it appears that the pilot might have been able to land the aircraft successfully had he maintained his approach at the five-mile position on final instead of aborting the approach. The time to cover this distance would have taken about two and a half minutes, allowing adequate time to perform the PC-1 failure procedures, lower the hook and execute a short field arrestment. The elapsed time between the PC-1 and PC-2 failures was four minutes and 15 seconds.

It was determined that a catastrophic failure of a tandem actuator caused a dual hydraulic system failure. Both PC failures were independent failures. The PC-2 low-pressure relief valve failed to open, allowing the hydraulic fluid to vent overboard.

It has been hypothesized that the experience and confidence developed through the three-hydraulic system A-7E possibly led to a false sense of security with regard to the two-hydraulic system TA-7. Regardless of the validity of such a statement, there is absolutely no substitute for in-depth knowledge of the systems any aircrewman is operating at the moment.

Your lips are a lovely shade of blue

(or, What you don't know about hypoxia could kill you!)

By V. M. Voge, CDR, MC, USN

"HYPOXIA?! Listen, Doc, we know all about that! Besides, helo drivers would never have to worry about hypoxia. (We don't even have to re-qual in the low pressure chamber anymore.) The jet jocks and the prop guys are the ones you should be talking to!"

Don't kid yourself! Hypoxia can and has happened to helo types "flying low" — and to just about everyone else. *Hypoxia is the single most serious hazard to man during flight.* It is a deficiency of oxygen in the body, most frequently caused by the reduction of oxygen partial pressure when ascending to altitude. We know that hypoxia was a big factor in aircrew loss during World War II. Our technology is now far advanced from what we had then, but the problem still persists. With the Navy's new mishap reporting criteria (1981), a command may now report a "physiological episode" without embarrassing the involved aircrew. ("No names, please") This led to an upsurge of hypoxia incident reporting. However, hypoxia episodes are still not frequently reported, or reported for what they are, for several reasons: Reluctance of the individual to admit having done something wrong that caused a hypoxia episode (i.e., forgot to connect the anti-G suit), non-recognition of hypoxia for what it really is, or thinking that hypoxia is so common that it does not merit reporting, etc.

The following are three scenarios, based on true incidents, in which hypoxia was a problem:

Helo. A large helicopter was flying cross-country and had to go over a mountain range. The aircrew would have to cross it at an altitude of 14,000 feet. There was only one oxygen bottle on board, although the helo carried the normal aircrew complement plus passengers. The crew was aware of the NATOPS requirement for oxygen above 10,000 feet, so they shared the one bottle they had between the pilot, copilot and crew chief. They noticed icing, but chose to ignore it rather than take corrective action. There is far more to this story, but the flight ended in a "controlled crash." This particular mishap brought about a change in the wording of OPNAVINST 3710.7, para 7, to read that each aircrew in command of an aircraft must have continuous oxygen during flight over 10,000 feet.

. . . for those of you who are "super tough," your first symptom may be unconsciousness . . .

Prop. Two experienced aviators, one of whom was transitioning into the aircraft, completed the normal pretaxi checklist before takeoff. One of the items on the checklist is a test of the cabin pressurization system. The instructor pilot (IP) was explaining the system to the pilot under instruction (PUI) and inadvertently left the switch in the "dump" position. (This was not noticed during the succeeding checklists.) During the post-takeoff checklist and climbing through 4,000 feet, the IP noticed the relative position of the needles on the cabin altitude gauge, but noted nothing abnormal. Passing 13,000 feet, the passenger oxygen masks deployed. The aircrewman disregarded this, as there was a history of inadvertent deployment of the masks with this particular aircraft. The IP was instructing the PUI in some of the aircraft systems and didn't notice the altitude warning light or the MASTER CAUTION light. Finally, at 19,000 feet, the aircrewman got out of his seat to stow the passenger oxygen masks. He immediately felt shortness of breath and started to hyperventilate. He also felt some gas expansion in his abdomen. He elected to return to his seat and tried to control his breathing. About the same time, the PUI felt somewhat uncoordinated while trying to work some flight instruments. He donned his oxygen mask, set it at 100 percent oxygen, took a few breaths and felt better. (No one

recognized hypoxia as the culprit.) He then took off the mask and continued on with his tasks. After a few minutes, he again felt the need for oxygen and put it back on. About this time, the aircrewman donned his mask, and then noticed that his fingernails were turning from light blue to a normal pink color. The IP hadn't utilized any oxygen up to this point. He looked at the cabin altitude gauge, indicating 20,000 feet and mistook this for the cabin differential pressure needle. He concluded that the cabin was pressurized. He did feel a little "lightheaded," however, and donned his oxygen mask set at 100 percent oxygen. He rechecked the cabin altimeter, noted the cabin altimeter to be about 20,000 feet and began an immediate emergency descent to 10,000 feet. Not until the emergency descent did anyone notice that the cabin pressurization switch was in the "dump" position. Another tragedy of errors.

Jet. A single-seat jet aircraft was overdue at NAS Shore. A short while later, interceptors were scrambled because of an unidentified aircraft in the coastal defense zone. When the interceptors found the single-seat aircraft, it was flying straight and level at 32,000 feet, in no apparent distress. The interceptor pilots were able to see the mishap pilot in the cockpit with his oxygen mask off. Numerous attempts to arouse and/or contact the pilot were unsuccessful. The aircraft finally flamed out and crashed into the sea. What happened? Most likely the pilot had been flying on autopilot with his oxygen mask off, a slow depressurization occurred, and the pilot died of hypoxia — probably before the aircraft flamed out.

In these three cases, one thing is evident. No one recognized hypoxia as the cause of the problem. There is a common misconception among aviators that it is possible to learn the early symptoms of hypoxia and to take corrective action when these symptoms are noted. Wrong! This theory is appealing because it allows all actions, preventive and corrective, to be postponed until the actual occurrence. This is a false and dangerous presumption.

The symptoms of hypoxia undergo a gradual progression as the atmospheric pressure decreases. But it is important to note that these effects vary from person to person. Some may become acutely ill at 12,000 feet, while others "seem" to be okay at 18,000 feet. The most striking and dangerous symptom is the psychological difficulty in recognizing that an emergency exists. Judgmental problems are one of the earliest effects of hypoxia. As the examples above illustrate, even if the symptoms are noted, the aviator may disregard them, or may take inappropriate corrective actions such as disconnecting himself from his oxygen supply. So for those of you who are "super tough," your first symptom may be unconsiousness.

. . . how much can you think about and do in five seconds?

Man is an animal who has a great fondness for oxygen. Inadequate supplies of oxygen almost always result in rapid deterioration of most biological functions and may cause death —rapidly or slowly. A simple ascent to 8,000 feet

reduces the partial pressure of oxygen by 25 percent and can cause a detectable impairment in mental function/performance. A sudden decompression to 50,000 feet will reduce the partial pressure of oxygen in the lungs to 10 percent of sea level norms and will cause unconsciousness within about 10 seconds, only about five seconds of this time being "useful" consciousness. How much can you think about and do in five seconds?

First, we'll give you a quick general classification of hypoxia, with some salient examples:

Hypoxic hypoxia. This is what we, in the aviation community, normally consider hypoxia. It's due, simply, to inadequate partial pressure of oxygen in the lungs and can be caused by low oxygen pressure in the air we breathe (e.g. at altitude, or in deep wells where the oxygen is displaced by carbon dioxide) or by some problem with the actual oxygen exchange in the lungs. Examples of this occur during accelerated maneuvers such as ACM, when there is not enough breathing going on to put oxygen into the lungs; or with diseases such as bronchitis and/or emphysema. Smokers, beware!

Anemic Hypoxia. Smokers routinely suffer from this type of hypoxia also. It occurs when the oxygen carrying capacity of the blood is reduced. Since the blood is unable to carry enough oxygen (like a freight train with half the cars missing), the tissues do not receive their "fair share." One is eligible for this type of hypoxia if he is truly anemic (inadequate nutritional intake, chronic bleeding, some specific diseases), takes certain medications or smokes — or at least is present where there is a lot of carbon monoxide — even car exhaust.

I was once asked if it were possible for someone to become hypoxic at 4,000 feet in a Jeep. Apparently, someone was trying to plead hypoxia as his defense in a vehicle accident. I looked into it and sure enough, if one chainsmoked two to three cigarettes, the blood carbon monoxide level would put him at the 13,000-foot altitude. Hard to believe, isn't it? Chronic, heavy smokers routinely carry an eight to 11 percent level of carbon monoxide around in their blood, which translates from eight to 10,000 feet of altitude. Just one cigarette in a normal, healthy, nonsmoking male will have the effect of putting him at 5,000 feet.

How do the other guys manage; those who are smokers and "good sticks?" Well, the body gradually compensates for the lack of oxygen, but never completely. These "super jocks" will never be as sharp or as fast as they could be if they were not smokers. It's sort of like the "chronic lunger" — the guy with serious lung disease, such as emphysema. He looks and acts okay, but it only takes a little push for him to decompensate.

Stagnant hypoxia is the term used for the actual reduction of blood flow to the tissues — something like a south Texas river in the summer. The most common cause of this type of hypoxia in our community is high acceleration forces — usually for jet jocks only. Cold can also cause this type of hypoxia.

Histotoxic hypoxia occurs when the body is unable to use the oxygen offered it. The supply is there, but there are no buyers. This happens with cyanide poisoning, as in a prison gas chamber.

Now that you're acquainted with the types of hypoxia, the next step is to take you up to 20,000 feet on air or to 45,000 feet on oxygen, step by step, describing what happens. Remember, though, that we are assuming that you are generally healthy and not on any drugs, including aspirin and/or nicotine. In general, the higher one goes in altitude, the more marked and severe the symptoms. Rapid rates of ascent, however, allow you to get much higher in altitude before the severe symptoms occur. Therefore, you may become unconscious before you experience any of the other symptoms of hypoxia. A rapid decompression at altitude could probably do the same thing.

4,000 feet (air): Visual thresholds increase. Your night vision is especially affected as the responsible part of the eye requires more oxygen to function than does the part of the eye responsible for daytime vision.

8,000 feet (air): There is impairment in your ability to learn new complex tasks.

10,000 feet (air); 37-39,000 feet (oxygen): This is called the "indifferent" phase. At rest you may feel no symptoms, but your recent memory, judgment and ability to perform complex calculations are impaired. You exhibit signs of increased fatigue, weakness and irritability.

10-15,000 feet (air); 39,000 feet (oxygen): This is known as the "compensation" phase. Your tolerance to environmental stresses (cold or hot temperatures) or to prolonged exercise is markedly impaired, as is your ability to perform complex tasks. The pulse and breathing rates are increased. Unfortunately, you don't recognize these manifestations as hypoxia. You suffer from increased fatigue, irritability, headache, decreased G tolerance and difficulty with simple tasks that require mental alertness or moderate muscular coordination. There are visual changes, slowed reaction times, feelings of exhilaration and, rarely, unconsciousness. All these symptoms have an insidious onset.

15-20,000 feet (air); 42,500 feet (oxygen): This is known as the "disturbance" phase. All the symptoms described above become more severe. The physiological compensation is inadequate to give enough oxygen to the tissues, and hypoxia is very evident. You now experience the symptoms of hypoxia even at rest. Higher mental processes, such as thinking, reasoning, judgment, etc. and neuromuscular control are affected. Your will power is compromised; your thinking processes are slowed; your mental calculations are unreliable, and your psychomotor performance is greatly impaired. There is decreased muscular coordination, and you cannot control the aircraft. There are also severe emotional changes, and you may become elated, euphoric,

pugnacious (want to fight the world), overconfident, morose or even physically violent. These effects are very similar to those produced by alcohol. You also notice light-headedness, tingling of the arms, hands, feet, legs and head. You experience extreme fatigue, somnolence, dizziness, air hunger (for which you hyperventilate), and cyanosis of the fingernails and lips. Physical exertion makes everything worse and frequently causes unconsciousness. At this altitude, the time of useful consciousness is about 10 to 20 minutes, with death at about one to four hours.

Above 20,000 feet (air); above 45,000 feet (oxygen): This is known as the "critical" stage. You are suffering all of the earlier symptoms, but in a far worse way. Your comprehension and mental performance deteriorate rapidly and unconsciousness comes with little, if any, warning. Frequently, your arms will jerk uncontrollably just before unconsciousness supervenes. Once unconscious, you will experience convulsions. The period of useful consciousness here is four to seven minutes, although rapid decompression will decrease this by about one-third.

Okay, now let's talk about some specific things that are happening to your body as it becomes more hypoxic.

Special Senses. There is a darkening of the visual field ("The sun is going down.") Both the peripheral and central vision are impaired. Visual acuity deteriorates. There is weakness and incoordination of the muscles of the eyes, you may see double. You find it increasingly difficult to focus your eyes. You will probably not be aware of the problem until oxygen is restored and the "lights come on." Even mild hypoxia (5,000 feet) can cause some visual impairment. This problem really becomes important on arriving at 12,000 feet. Tunnel vision also becomes a problem. The senses of touch and pain are lost. Hearing is usually the last of the special senses to go, but it is impaired with moderate and severe hypoxia. Everything sounds a long way away.

Cyanosis. Cyanosis of the skin and mucous membranes (lips, tongue, eyelids) is not due to a lack of oxygen but, rather, too much carbon dioxide in the system. Those who are anemic are not cyanotic. Average aviators breathing air will become cyanotic at 17,000 to 19,000 feet.

Mental processes. The most striking mental change is psychological, making corrective action difficult. Intellectual impairment occurs early, and the pilot has difficulty recognizing an emergency situation. Thinking is slow, memory is faulty and judgment is poor.

Personality traits. As hypoxia increases, there is a release of one's basic personality traits and emotions: euphoria, pugnaciousness, elation, moroseness and gross overconfidence. As mentioned earlier, the results are similar to what happens when one is intoxicated with alcohol.

Psychomotor functions. Muscular coordination deteriorates, and the performance of fine or delicate muscular movements is impossible. This is manifested by poor handwriting, stammering and poor coordination.

Loss of consciousness. The altitude at which an individual will lose consciousness varies. It depends on such things as whether he is hyperventilating (will lose consciousness sooner), if there is very little carbon dioxide hanging around (can go higher), exercise, general physical fitness, drugs, smoking, etc. Because of this dependence on many factors, unconsciousness due to hypoxia can occur anywhere between 16,000 to 24,000 feet.

Time of useful consciousness. This term refers to the interval of time between the reduction of oxygen tension in the air we are breathing and the instant at which there is a specified degree of impairment in performance. It usually refers to the onset of physical or mental impairment which prohibits the taking of proper corrective action. It is the time during which an aviator can recognize the problem and reestablish his oxygen supply, initiate a rapid descent, or take other corrective action. It is influenced by many factors, such as the criteria for impairment, the aviator's age, sex, physical activity, smoking history, medications, individual's intrinsic tolerance, the amount of oxygen available before exposure to the hypoxic environment and the speed at which hypoxia is experienced. The numbers may vary from 270 seconds at 25,000 feet to 71 seconds at 36,000 feet (air).

Rapid decompression. This term refers to a rapid (measured in seconds) change in barometric pressure. It exposes the aviator to environmental stresses so severe that physiological

compensation cannot take place before loss of consciousness. It lowers the time of consciousness by 23 to 50 percent. The volume and pressures of the gasses in the lungs increase rapidly, and there is a sudden expulsion of air through the mouth and nose. One's normal reaction is to inhale but, after taking a deep breath, lung oxygen pressure is the same as the surrounding air. Since it takes five to eight seconds for the blood to flow from the lungs to the brain, if one is at altitude, loss of consciousness is quite rapid.

There are basically three types of hypoxia:

Fulminating. Example: One removes his oxygen mask at 32,000 feet. Loss of consciousness occurs in about one minute.

Acute. This usually occurs in transition to a relatively high altitude. Example: A rapid decompression from 10,000 to 25,000 feet without oxygen equipment. Loss of consciousness will occur in about two minutes.

Chronic. This type occurs so slowly that it can be asymptomatic and unsuspected. The symptoms are usually not dramatic enough to alert the aviator.

One recovers from hypoxia by breathing oxygen. Simple, isn't it? Of course, over 35,000 to 39,000 feet, oxygen must be administered at pressure. If hypoxia has been present for a while, an aviator may suffer a headache, usually over his forehead, and occasional nausea and vomiting. Sometimes, giving oxygen rapidly after a hypoxic episode will cause the hypoxia symptoms to get worse for about 15 to 20 seconds. No one really knows why. It's called "oxygen paradox," and may even cause momentary convulsions and/or unconsciousness.

"All right. We've heard enough about hypoxia — the how's and why's. How do we prevent it? What do we do if we recognize it?"

Most of the hypoxia episodes are due to the improper use of oxygen equipment, or problems with the equipment (improper care). Further, some aviators are physiologically predisposed to hypoxia.

As far as you, the aircrew, are concerned, we've already mentioned things you can do. You should be well-nourished, healthy, physically fit, rested and should avoid drugs, medications, alcohol, caffeine and smoking. Always check your oxygen equipment during preflight and during flight. If you suspect hypoxia, and the odds are against it, try breathing 100 percent oxygen. Fifteen seconds of 100 percent oxygen will restore the "faculties" to a person who is marginally conscious. If oxygen seems to help, descend immediately to 5,000 to 10,000 feet. Always make sure your oxygen mask fits and is properly adjusted. If an oxygen disconnect is discovered and no decompression is involved (unpressurized cockpit), try to hold your breath until you can correct the problem. In this way, the lungs will have a higher concentration of oxygen than the surrounding air in the cockpit. Breathing will only cause a more rapid loss of oxygen from the tissues.

As we have seen, hypoxia is a problem — a very serious, insidious problem. Perhaps many of our mishaps of undetermined cause and those attributed to "pilot error" were actually hypoxic episodes. We have no way of knowing, but judging from the number of reported incidents of hypoxia and the ease with which it can occur, it seems likely.

. . . sometimes giving oxygen can cause the symptoms to get worse for 15 to 20 seconds.

"Something in my subconscious regions questions my actions. We've been descending too long at too fast a rate. I begin to scan again . . ."

The Invisible Splash

By LT Darrell S. Newcomb
VS-32

I notice the world outside the canopy. It's very black, and the sky is brilliant with stars. We're flying an S-3A, marshaling at 7,000 feet, ready to commence in one minute. The TACCO (tactical coordinator) asks for an OTPI (On-top Position Indicator) check. As COTAC, I configure the switches accordingly.

"OTPI checks."

"20 seconds," as we continue inbound.

"Everyone has his harness locked?" I ask once more prior to commencement.

"TACCO, SENSO (Sensor Operator)."

"Let's go."

I depress the mike switch, "700 commencing, state 6.2."

Our headphones crackle with static, "700, 6.2, radar contact, 21 miles fly heading 180."

We're descending at 5,000 fpm, at about eight degrees nose down.

"How's the AFCS (Automatic Flight Control System) look?" inquires the TACCO, intent on completing the system checks prior to recovery. I glance at the FCT (Flight Control Test) panel.

"Okay, Channel 2 is out, should I try reconnecting that or not" I ask?

"Yeah, go ahead."

Marshal comes up, "700, heading 180, go button 18, check in."

"Switching," I glance down to my right, look up the frequency on my comm card, then back to the left to enter it into the IRC (Integrated Radio Control).

"Approach, 700 checking in."

"700, you're radar contact, 17½ miles, take angels 1.2, the final bearing, 360."

"360."

"700, expect to dirty up on the downwind, this is a bow-on approach to the left downwind."

I'm still working on the FCT panel, attempting to identify the problem so I can write up a concise VIDS/MA[…]

The pilot, observing my attempts, adds, "Okay[…] got is . . . it did the same thing last flight, Channe[…] work at all."

"Okay."

"Going to angels 1.2," I interject, though I'm […] the instruments at all.

Something in my subconscious regions […] actions. An awareness grows that things ar[…] been descending too long at too fast a rate. […] again. I look at the altimeter: Is it passing[…] feet? I find it incredible that the pilot wo[…] 3,000 fpm at this altitude. *No, we must b[…]* As we pass 1,300 feet, I know the altim[…] 1,200 feet.

The TACCO, monitoring the altitu[…] about to utter, "Altitude."

The next words out of my mouth[…] doing, pilot?"

"I'm going 250 knots . . ."

(Say what you mean, there's no ti[…] pass 900 feet.

"Altitude!"

"Oh, Shoot!!"

(Damn, man, quit fooling ar[…] pass 600 feet.

"Pull up!"

I never consider the possi[…] suddenly, hence I don't even […] handle.

We bottom out at 300 fe[…]

This could've been anot[…] apparent reason, flying[…] I have 500 and 1,000 hour[…] an experienced crew alm[…] tistic?

For answers, we ca[…] night was IMC with n[…] cat/trap at the botto[…] customary position […] mencement, the TA[…] of allowing the fro[…] Once we commen[…]

S/MAF.
"Okay, what we
hannel 2 doesn't

h I'm not scanning

gions questions my
ngs are amiss. We've
a rate. I begin to scan
assing 1,700 or 17,000
ot would still be doing
must be higher.
e altimeter is not lying.

altitude on his display, is

mouth are, "What are you

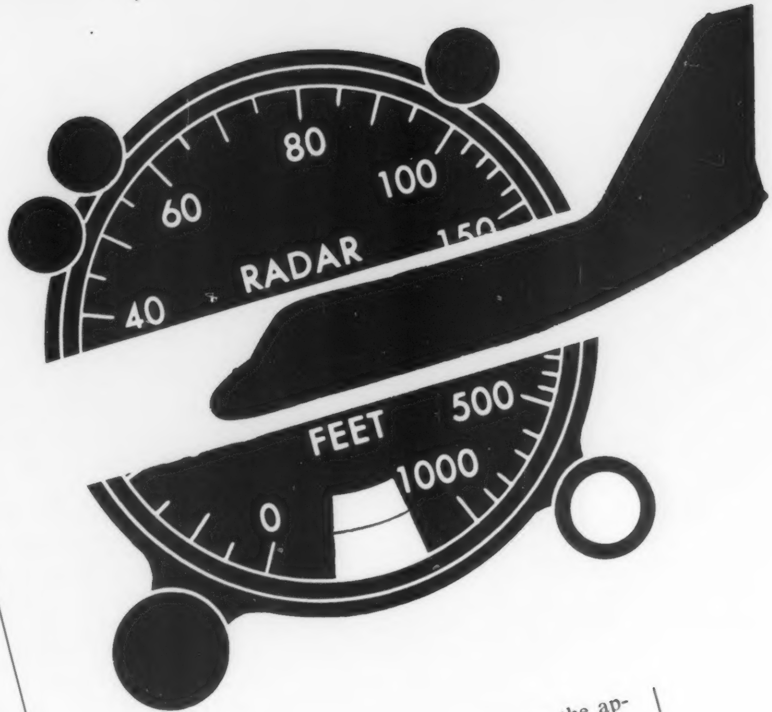
s no time for idle chitchat.) We

ng around, do something!) We

possibility that I may meet water
even begin to reach for the ejection

00 feet.
another example of an aircraft, for no
ying into the water. The pilot and
hours in type, respectively. So why does
w almost become another accident sta-

e can begin in the holding pattern. The
ith no apparent horizon. We were a trap-
ottom of the Marshal stack instead of our
tion on top. Within a minute prior to com-
e TACCO continued systems checks instead
e front seats to concentrate on the approach.
mmenced, further requests diverted both the



pilot's and COTAC's attention from monitoring the approach. Thus, with the normal cockpit routine disrupted, the IRC was not configured for an instantaneous frequency change to the final controller, "passing platform" occurred unnoticed, and the RAAWS (Radar Altitude Aural Warning System), with its altitude warning alerts, was not activated. When I resumed my scan, the inertia of hundreds of routine flights refused to let my mind immediately accept the fact that I was in an *extremis* situation. A simple altitude call would've been sufficient to draw the pilot back to the altimeter, but presuming that he was monitoring the approach, I just asked what he was doing. The final controller never alerted the aircraft that it was descending below altitude . . .

A few lessons learned from this incident. When the approach begins, the mission ends. Those not directly involved in the approach should remain silent. Those involved should anticipate events, altitudes, set up instrumentation such as radios, RAAWS and auto controls and concentrate on a successful recovery. And at no time should any crewmember feel inhibited from alerting the crew to a safety of flight item.

After some reflection and debriefing among crewmembers of this flight, it was a mere 300 feet that saved us from our reduced alertness and an abrupt termination of our aviation careers. Death was only seconds below our invisible splash!

Midair With a Destroyer

By LT Jim Osborne
HC-3

Mission — Night VERTREP to carrier battle group.
Plan — Work the carrier alongside the replenishment ship, and upon completion work numerous smallboys alongside and on various stations.
Weather — 500 overcast, less than one mile in rain (occasionally heavy).

WITH the exception of the weather, the above scenario is routine for H-46 detachments onboard replenishment ships operating in the Indian Ocean. However, if the weather had not been as it was, I wouldn't be writing this article.

The night started like many others. Two H-46s launched and commenced VERTREP to the carrier alongside the AFS to port. The operation went slower and not as smoothly as usual because of reduced visibility (remember the night/rain combination), but seemed to be progressing safely. Needless to say, the blood pressure and anticipation were at their highest point, but after a few hours we all seemed to settle down to the point of being just terrified. As HAC, I decided to fly left seat on this flight and was doing the drops to the carrier while my copilot was making the pickups from our AFS. We had finally completed the carrier when the trouble started. About 20 minutes earlier, the pilot in the tower of the AFS (a highly experienced HAC) informed both aircraft that a smallboy (later identified as a DDG) on station aft of the carrier would begin taking station to commence an UNREP approach to starboard of the AFS. We rogered the information and stored it.

After the last drop on the carrier, I instructed my copilot to take a perch position behind the AFS (a high hover behind the ship used as a waiting station) while we determined our next customer. I chose the perch rather than an orbit because of reduced visibility.

When we established our perch, a series of events (most of which were identified later) began which almost led to a major mishap. In a nutshell, and to satisfy your curiosity, my H-46 and a DDG had a midair collision. Fortunately, a couple of lucky breaks kept a potential disaster down to a Class C mishap. There were no injuries, less than one hundred dollars of aircraft damage and a bent mast for the DDG. After a closer look at what happened, I will state in retrospect what I feel were some major causal factors.

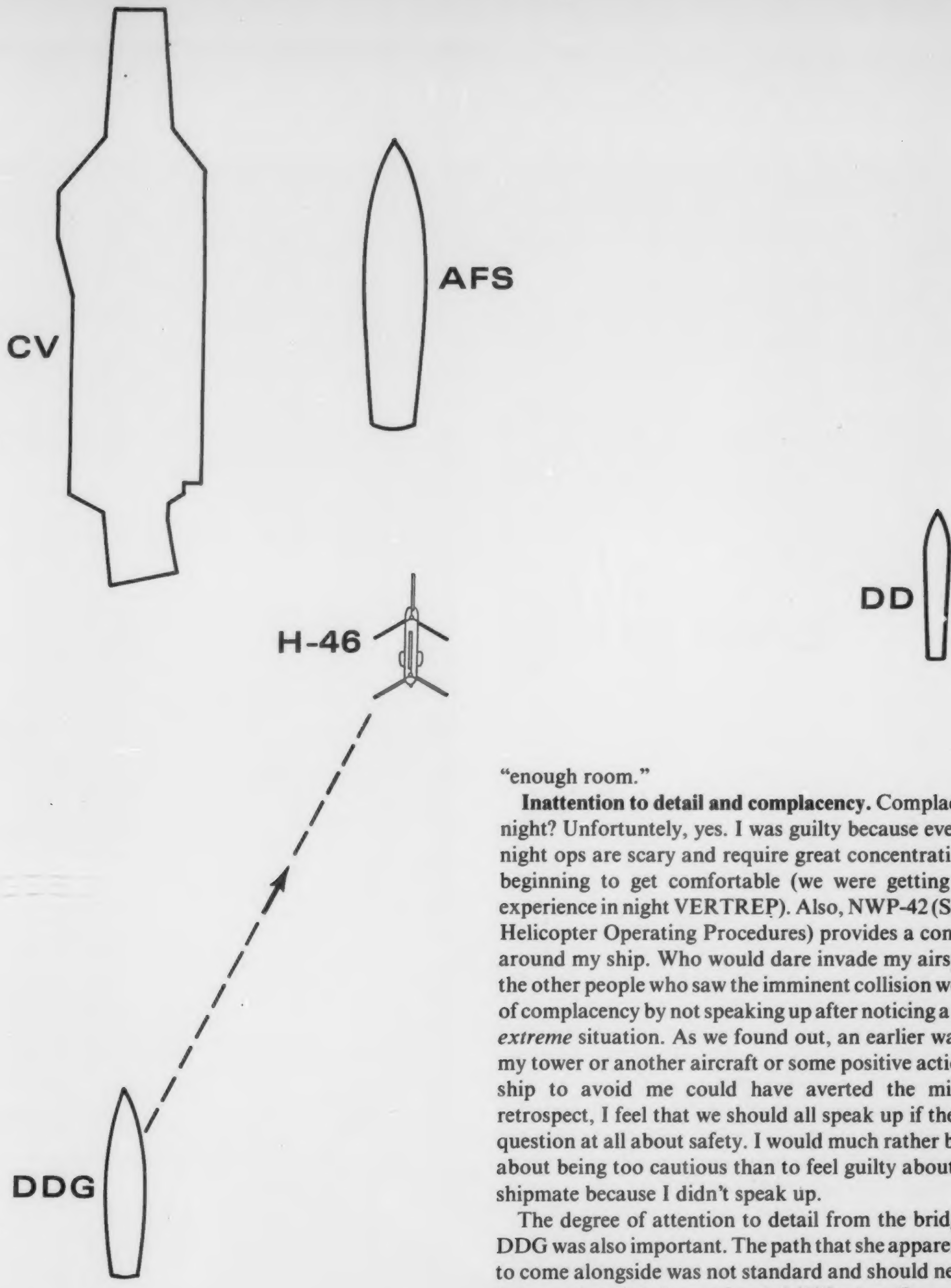
As I said, we took a perch to wait for our next customer. My copilot had the controls and established a 125-foot hover (radar altimeter verified). I called the tower to determine our next customer and to find out if we were cleared to start again. While I was talking on the radio, I heard a sudden call of, "Up, Up, Up!" from my crewman. My first reaction was a quick glance at the radar altimeter (still 125 feet) while reaching for and pulling a load of collective. I felt a thud and a shudder as I heard from the crewman, "There's a destroyer beneath us!" I took the controls and started thinking about controlling my water entry. A feeling of surprise and relief swept over me as I realized that my trusty machine was still flying. A quick control check verified that we were still in the air, so I declared an emergency and asked for clearance to land on the carrier. After landing, the crewmen did a security check of the aircraft. Finding no damage, we asked for and received clearance from the det maintenance officer to return to the AFS for a more thorough inspection. We shut down the aircraft on our deck and discovered one flat tire and a broken hydraulic line on our port mainmount. Communication with the DDG revealed that they could not confirm any damage. A few hours later, when it was light outside, we could see the top of the mast of the DDG bent backwards.

A few facts and some conjecture before we look at causes. We were in a 125-foot hover by our radar altimeter, the top of the mast of this particular DDG is 126 feet above the water. A few feet here or there could have made the difference between disaster and another near-miss. Quick reaction and calls by my crewman may have averted disaster.

In my opinion the causes of the mishap were communication problems, inattention to detail, weather and unfortunately, complacency. I'm sure some of you will think of others, but let's look at these:

Communication. Both aircraft rogered the fact that the DDG was coming alongside, but failed to really consider the situation (we did this all the time). Communication between the bridge of the AFS and the tower was confused, and the word didn't get back that ROMEO was closed up and the DDG was commencing her approach. There was too much talking between myself and the tower, adding to the confusion and distractions.

Weather. Night and rain restricted the visibility and destroyed depth perception. While in the hover, and just before the collision, I saw in the distance to starboard the lights of a ship which I thought was the ship coming alongside (it was actually 1,000 yards away). Many people on the AFS, the DDG and the other aircraft saw the imminent collision but everyone thought there was



APPROACH diagram by Frank L. Smith

"enough room."

Inattention to detail and complacency. Complacency? At night? Unfortuntely, yes. I was guilty because even though night ops are scary and require great concentration, I was beginning to get comfortable (we were getting a lot of experience in night VERTREP). Also, NWP-42 (Shipboard Helicopter Operating Procedures) provides a control zone around my ship. Who would dare invade my airspace? All the other people who saw the imminent collision were guilty of complacency by not speaking up after noticing a potential *extreme* situation. As we found out, an earlier warning by my tower or another aircraft or some positive action by the ship to avoid me could have averted the mishap. In retrospect, I feel that we should all speak up if there is any question at all about safety. I would much rather be kidded about being too cautious than to feel guilty about losing a shipmate because I didn't speak up.

The degree of attention to detail from the bridge of the DDG was also important. The path that she apparently took to come alongside was not standard and should never have been used at night in restricted visibility (see diagram). Keep in mind that this is only a diagram that I have drawn by talking to those who witnessed the mishap and it is not carved in stone.

There were many people at fault in this mishap, not the least of which was me as HAC. But my intent here is not to point fingers. I only hope that there are lessons to be learned from this mishap and that similar situations can be avoided in the future. ◄

Running on Empty

By A Fighter Pilot Who's Been There Once Too Often

IT WAS a "simple hop." Put two pilots in one jet, fly 100 miles to an East Coast rework facility, pick up a second fighter and single-seat back to home base.

Between us, we had several thousand hours of tactical jet time. I was a mid-grade lieutenant with two cruises and 1,300 hours in type, while the other pilot, riding in the rear cockpit, was a Vietnam-experienced LCDR with commensurate fighter time. Not exactly a team you'd expect to see six miles from their destination, heading away from the runway, in solid IMC, with only 700 pounds of fuel in their thirsty fighter! (For you non-fighter types, that equates to seven minutes of clean-configuration flying, give or take about three minutes, depending on fuel gauge accuracy.)

Our preflight preparation seemed pretty good; DD-175 and appropriate liaison with base ops, thorough weather brief, flight-conduct brief and complete inspection of gripe sheets. *However, we failed to address our unique roles as two pilots riding in an aircraft that normally carries a crew (i.e., pilot and RIO).* The senior pilot occupied the stickless


BRader

"We looked at our meager 700 pounds of fuel and decided to break the rules . . ."

back seat because he, being more experienced, was going to fly the second jet. We wanted to get him into that airplane without having to shut down at the NARF. As comrades and experienced fighter pilots, we didn't want to invade each other's "space" by saying, "You do this," and "I'll do that." Besides, shouldn't any good fighter pilot be able to do it all?

We launched into IMC with a light-loaded fighter. It was weather you'd expect from a winter cold front off the eastern seaboard. Our destination forecast was occasionally 1,000-feet overcast and three miles visibility with rain and low-level turbulence. The fuel load was sufficient to comfortably complete our 100-mile flight . . . we thought! (But it's always the one you don't see that gets you.)

En route, shortly after Center told us, "Radar contact lost," our TACAN malfunctioned, so we burned an unplanned 1,000 pounds of fuel while we oriented ourselves with the help of an alert departure controller. We arrived near our destination about the same time as (1) the cold front and (2) the "first wave" of that base's returning daily sorties. Approach Control was busy, and it sounded as if runway conditions were deteriorating due to rain. We requested a precision approach and were vectored for a long setup. We were getting a little tight on gas, but it still looked as if we'd land with 1,500 pounds.

I was working hard to fly a good precision approach. I'd taken an aircraft with an attitude gyro that gave inaccurate azimuth information; however, the BDHI (Bearing Distance Heading Indicator) was good, and the airplane's gyros were fine with respect to attitude information. Nonetheless, the malfunction required a distinctly foreign instrument scan. I was slightly distracted with this while trying to fly a smooth GCA in solid IMC. About the time we pushed over onto glide slope, the low-fuel light illuminated (2,000 pounds). Still, we were on our way down and would be on deck shortly. No sweat for two hot fighter pilots . . . .

We broke out at 900 feet. I had the normal sense of relief to be off the gauges. "Looking good now!" I told myself, "Not so fast — the controller is telling us to go around! But I'm on centerline and on glide slope; I'm even on speed this time! Well, great, but the guy ahead of us just took a trap due to a strong crosswind and water on the runway, so we're going around!"

It's unplanned contingencies like this that keep naval aviation the exciting profession it is. This is why the backseater and I both cursed to each other as I waved it off with 1,500 pounds.

"Back into the clouds and on the gauges and there's that damn azimuth problem again," I muttered silently. "Hook down, for now we're going to trap. Meanwhile, my backseater was telling Approach that we were at minimum fuel. We were obviously a little late with this, but hadn't planned for a waveoff. Because we wanted to trap, the controller decided to set us up for an off-duty runway to avert similar fouled-deck waveoff to other traffic. This took some vectoring, and we finally got on base leg at six DME with 1,000 pounds. Things sounded promising, and I dirtied-up approaching centerline. In spite of this, Approach vectored us across centerline due to conflicting traffic! Hey, we didn't plan on this, either!

Up came the gear.

"What! Do a port 360? No way, Approach!" This is where the 700 pounds came in. "We're emergency fuel (yes, late again, but "Be prepared" is the Boy Scouts, right?), and we need an immediate vector to the field!"

"101, do you have the field in sight?"

"No, But if I can descend to 1,000 feet I will."

"You can't descend below 1,500 feet if in IMC."

Well, we looked at our meager 700 pounds and the lengthy six miles, broke the rules and descended. Only this time we had to go to 600 feet to break out. Good thing we didn't hit something, like the ground, a tower or another airplane! Fortunately, we picked up the field, identified our runway and dropped the gear and flaps in close. My pulse rate bled off to something only slightly above our airspeed.

Except for the horrendous crosswind on the off-duty runway, the pass was never in question. We rolled into the gear with 400 pounds on the gauge, but the gauge was a little off because it read all nines by the time we cleared the gear, fast-taxied and arrived at the pits. It had gone past zero about the time we rolled by base ops!

So, what do you think? Knock it off and set up another? Any landing you can walk away from is a good landing? Forget the preflight, we're in a hurry?

We both think we were just damn *lucky*! The judgmental/procedural errors we committed in this tale of woe

"At this point my pulse rate bled off to something slightly above our airspeed . . ."

almost did us in. To keep you from having to trust your wings to blind chance, I suggest you remember and adhere to the following:

In our complex Navy jets, all crewmember responsibilities must be explicitly known. This is especially pertinent in any out-of-the-ordinary flight (e.g., two pilots flying together when they usually don't). Excuses such as "But I thought you were watching______" (insert the WX, fuel, the bogey, the ground, etc.) won't hack it. Also, all crewmembers must be thinking similarly about what constitutes minimum/emergency fuel.

• *Minimum Fuel.* Declaration of "minimum fuel" with your controller is a judgment call based on expected landing delays and your fuel state. OPNAVINST 3710.7 addresses the judgmental nature of the term, stating that when minimum fuel is declared, the pilot feels his fuel state is such that no undue delay can be accepted en route to his destination. Remember, however, this is not an emergency situation in the eyes of the controller! It goes on to say that, "If at any time the remaining useable fuel supply suggests the need for traffic priority to ensure a safe landing, the pilot shall declare an emergency." My feeling is that if it appears you will land with less than your squadron SOP minimum on deck fuel state (2,000 pounds for us), minimum fuel should be declared. However, I stress the need for judgment considering WX and expected delays — you'll sound pretty silly calling "minimum fuel" at the 180 when you're the only aircraft in a VFR pattern.

• *Emergency Fuel.* Of course, this is another judgment call. Again, you must consider WX, anticipated delays and your fuel state. All of us have gotten low on fuel at one time or another due to CV bingo, fouled decks or WX delays. Just because, "I've been this low before," is no reason not to declare an emergency for fuel! An "I can hack it" attitude won't hack it. Sure, you may be cool as a cucumber, but your trusty steed needs go-juice to keep going. *Emergency fuel is based on the aircraft and its needs, not your attitude.* I believe for field landings that "emergency fuel" should be declared in a Navy fighter whenever you will be landing with less than 1,500 pounds on an IFR approach, and 1,000 pounds on a VFR approach.

• *Responsibility of the Pilot-in-Command.* If there is only one set of controls in your aircraft, you, and only you are the PIC, even if you have SECNAV himself in the other seat! Don't forget it, because it's your tail if you mess it up. No matter what the seniority of the pilots, or how much you respect the fellow in the back seat, if something isn't going the way you'd like it, speak up! Don't paint yourself into a corner because you expect the WX to improve, the other guy to make a decision or to say something any minute now. You can't afford to stand on ceremony in the air!

Don't fly an aircraft into instrument conditions if all of your instruments aren't working! Sure, Navy aircraft have redundant systems, but they're meant for airborne failures, not "sortie-insurance" so you can get airborne with a malfunction. That "small problem" could cause you major difficulties later on.

Never leave altitude in a tactical jet without first contacting Metro if your destination forecast is for less than VFR minimums (1,000/3)! If you don't talk to Metro, at least ask your high-altitude approach controller some very specific questions about destination field conditions. A jet burns too much fuel at low altitude to go poking about in clouds without knowing exactly what the cloud bases, field visibility and runway conditions are. Once you have such information, talk between cockpits and develop, or reaffirm, your coordinated plan for the approach concerning fuel, hook up/down, drag chute, a VFR circling approach if waved off in-close, etc. Don't wait until three miles on your PAR approach to do this! This should be the case no matter how familiar you are with the field. True, fields don't change . . . but weather does!

"Be prepared" is *not* just for Boy Scouts! If you trust things to luck, you may be lucky, or you may not. Have a contingency plan in the back of your mind, so when the "fuel level low" light illuminates, you're ready. Drive the situation, don't simply react!

We made some big judgmental errors. "What? Delta Sierras," you say, "I could never do that!" But do you know of any mishap crew who purposely got themselves into a jam? Not one! The events preceding a mishap are often a snowball of omissions, not commissions ("I forgot to do this; I should've done that; If only I had . . . "). No matter how much experience you have, flying from point A to point B is not as simple as we usually believe.

Shock Value

By LT Colin Sargent

It was a simple twist of fate. In spite of his 3,500 hours, LtCol Greg L., USMC, had never landed on a carrier at night.

Not even in T-2s back in Pensacola, I6 years earlier.

Like most naval aviators, he remembered Pensacola as a blur. Spanish moss, the Seville Quarter, programmed texts, carrier qualifications, that blonde in the cinnamon dress . . .

Tomorrow night, it would all be real. In truth, he was a little nervous. For I6 years he'd flown in land-based jets, never logging a day of carrier duty.

Was that possible?

Sure. He had plenty of buddies who'd done the same thing. Not intentionally, mind you — it was just the breaks of the squadron assignment game.

Besides, he was *king of the dry runs;* as the squadron's CO, he'd landed on more painted FCLP carrier decks than he could shake a stick at.

Things were always more certain when they were make-believe.

He looked around the readyroom. Some of the younger pilots were on edge, too. It was the *Intruder* squadron's first deployment ever on a flattop, and none of the Marine fliers had recent carrier experience.

Greg L. wished more than just one junior crew of Navy bluewater pros had been assigned to the squadron to add a dimension of corporate carrier memory, but that hadn't happened. There was no one he could really shoot the breeze with. He'd been having a little trouble flying the ball to touchdown lately during FCLPs.

But what the heck. Even though the FCLP LSOs had taken him aside and warned him about spotting the deck, he was ready, more than ready. These prelaunch doubts were reserved for nuggets, anyway.

And thankfully, he hadn't been treated like a nugget during the carrier workup, even though he had less recent carrier experience than an average nugget would have, fresh from *Skyhawk* traps.

When he'd made a mistake in the FCLP pattern, for example, the instructors had taken him aside joshingly, cheerfully, and, with his silver leaves reflecting in their eyes, had begun their soft-core admonitions with, "Now, Colonel . . ."

Nuggets getting debriefed were familiar with a different tone of voice.

He drank a glass of cranberry bug juice, said good night to the guys and headed for his stateroom. With any luck, he'd soon be asleep.

Propelled by gigantean shafts, the carrier moved inexorably into the night, into the Colonel's black future.

Twenty-four hours later, he was in the sky, flying a night approach. An earlier day hop had gone passably, but now, both he and his first-tour bombardier navigator were recovering from vertigo they'd experienced during Marshal holding in IMC aft of the carrier. In spite of the vertigo, neither he nor the bombardier navigator had broken down and owned up to it on ICS. Now they were VMC beneath the overcast, on their way to touchdown.

They didn't know that residual effects from vertigo can last up to 60 minutes, even if you think you've shaken them off.

Greg blinked his eyes and remained on glide slope. The infinity outside was black, rushing with waves, swallowing him.

On glide slope.

On course.

He was flying the ball beautifully.

In 11 seconds, he was going to die.

He was past the waveoff point now, flying the ball.

In seven seconds, he was going to . . .

Everything was gorgeous, except for one thing. He took his eyes off the ball, spotted the deck and pulled a bit of power. It was a simple mistake, something anyone who lacked situation awareness might do.

In three seconds, he was going to . . .

The LSO's screams were too late. The bombardier navigator heard Greg say, "Oh, no!" quietly as the *Intruder* hit the ramp, exploding into a ball of flame.

No ICS communication had occurred from the in-close position until Greg's stunned "Oh, no!" triggered the bombardier navigator's successful ejection. The Colonel stayed with the aircraft as it scraped sparks and metal across the deck and went over the side. He couldn't move a muscle. He was so surprised, he wasn't even sure he'd hit the ramp. His delay in ejecting was probably a function of late recognition. Had either crewmember determined that the aircraft had struck the ramp and communicated that fact, the ejection might have occurred earlier.

Greg might have lived.

But even then, he wouldn't have dared to tell anyone that he'd had doubts about his ability to trap aboard a carrier I6 years after initial qualifications.

He'd have looked his friends right in the eye and said, "Sure, bubba. Just a bit of bad luck. No problems. We'll get it next time."

And nervously, the bubbas would have laughed and agreed, wondering how Greg could be so strong and hoping it would never happen to them.

This article describes a composite of different mishaps, and LtCol Greg L. does not represent any mishap pilot, per se. As we build to a 15 carrier air wing Navy, it is probable that more and more Marine Corps squadrons will be deploying on CVs. The problems depicted in this story have happened in the past at one time or another, and we are open for history to repeat itself. — Ed.

LT B. V. Smith
LT Matt Gebel
VF-213

WHILE performing landing checks at 800 feet in a Case I CV recovery pattern in their F-14, LT B. V. Smith, pilot, and LT Matt Gebel, RIO, encountered an extreme, uncommanded roll to the right following full and normal extension of all flaps and slats. LT Smith instinctively and immediately returned the flap handle to UP while applying full left stick and rudder, simultaneously selecting full afterburner on the starboard (downwing) engine, in an attempt to regain control of the rolling and descending aircraft. As indicated airspeed increased to 210 knots, marginal control was achieved at 300 feet and a gradual climb to 10,000 feet was initiated.

On climbout the wingman joined and transmitted that the port flap was full down and the starboard flap was full up without slats down. The aircrew then followed NATOPS procedures for "Flap Asymmetry Without Lockout," which successfully returned all flaps/slats to the up position. An uneventful no-flap CV recovery followed.

Postflight investigation indicated that following full flap extension, a catastrophic failure of both the starboard flap actuator and the starboard flap "no back" allowed the starboard flap to be blown up.

LT Smith's and LT Gebel's outstanding crew coordination and professional airmanship in this most critical situation, undoubtedly saved not only a valuable Battle Group asset but the lives of an irreplaceable flight crew.

LT B. V. Smith (left),
LT Matt Gebel (right).

BRAVO ZULU

LT Brent Larson
LTJG Brad Kuether
VA-196

IT was a threatening night with heavy seas and a rolling flight deck as the crew of LT Brent Larson and LTJG Brad Kuether taxied the A-6E *Intruder* to the port bow catapult aboard USS CORAL SEA. They had just completed the pretakeoff checklist and the plane was ready for flight. The yellow shirt signaled full power. LT Larson ran the engines up and . . . "a good wipeout, gauges okay, strut hard, BN's ready, head back against the seat, a big gulp of air and exterior lights on, here we go!"

A slight pause and BANG, the solid smack in the rear that tells you that you are on your way. But right after that initial hit there was nothing —absolutely nothing. The plane was no longer roaring down the catapult but was rolling at a good speed toward the port catwalk! LT Larson immediately knew something drastic had gone wrong. They were rolling on the flight deck toward cold, dark water. The catapult had failed. There was no time to analyze. The pilot's thoughts were: "The cat has failed, we're heading for the water, power to IDLE, jump on the brakes. We won't stop, we are going over the side . . . hit nosewheel steering, slam right rudder and groundloop this baby . . . We're turning, it's working!" At the same time, LTJG Kuether, sensing that tonight was not going to be normal, hawked the approaching catwalk and was preparing to call for ejection if the aircraft started over the side. As he felt the groundloop take effect, he switched his scan to the bow. Again he monitored the bow's approach and prepared to call for an ejection if his pilot's last ditch efforts failed. The plane groundlooped on the bow with smoking brakes and came to a stop between catapult Nos. 1 and 2 facing aft.

The entire evolution was completed in **four seconds**. Investigation revealed that the nose-tow attachment fitting which holds the aircraft in the catapult separated from the nose gear after the initial movement of the shuttle. The impulse was insufficient to give the aircraft flying speed but it did accelerate it to a speed that made the brakes incapable of stopping the plane. The groundloop was the only chance the aircrew had to save the plane.

This immediate response in an *extremis* situation reflects on the cool professionalism of the crew. The skipper of VA-196, CDR Ken Pyle, remarked after the incident that, "This is the most outstanding example of quick reaction and cool airmanship that I have witnessed in 15 years of naval aviation. We are extremely proud of Brent and Brad."

LTJG Brad Kuether (left),
LT Brent Larson (right).

It Looked Like All The Rest

By Russ Forbush
APPROACH Writer

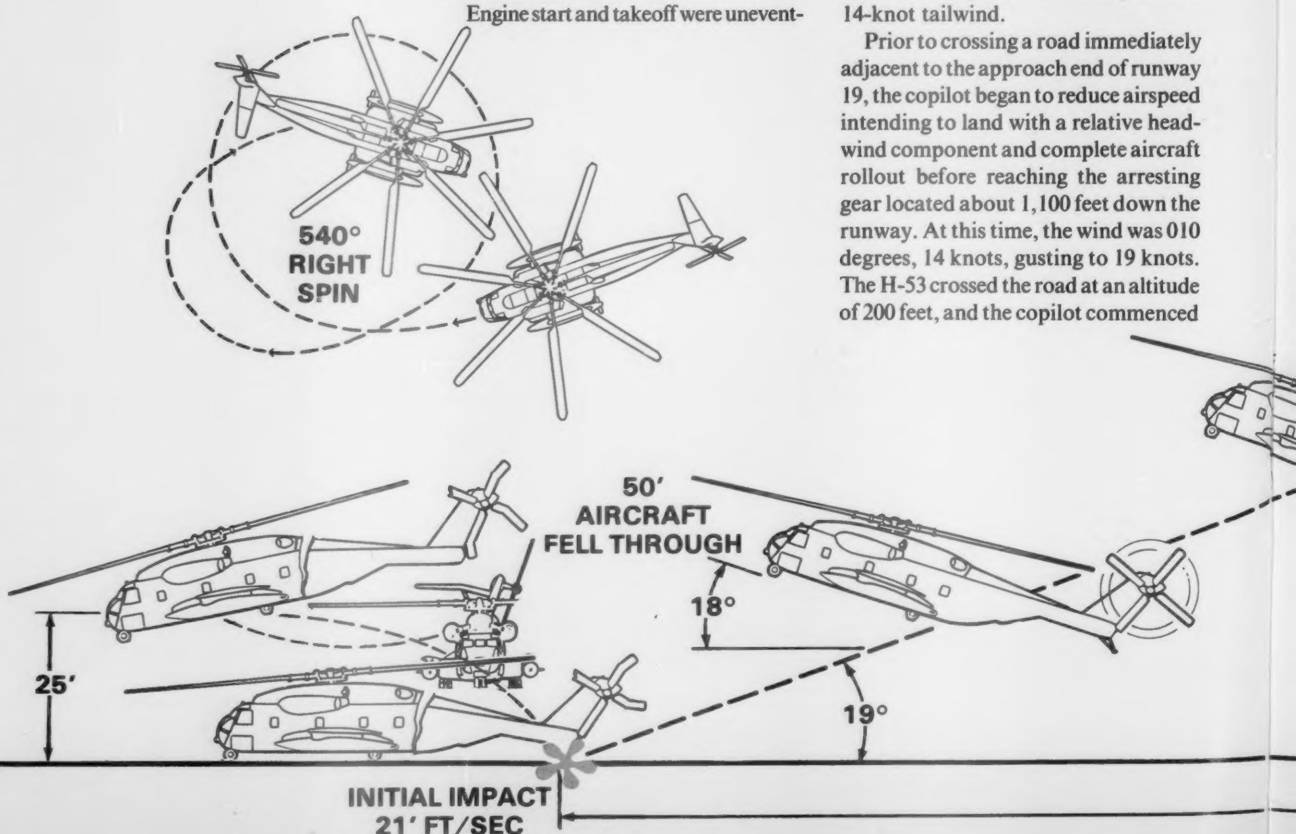
"I'VE done this thing umpteen times in the past, and until the bottom fell out, it looked like all the rest." Similar statements have been made by many naval aviators following flight mishaps. Although the action in this article centers around an H-53, the factors that led to the mishap could easily occur in the cockpit of any aircraft.

The normal preparations for flight were undertaken at NAS Homebase. The copilot presented the NATOPS aircrew mission brief with the PIC in attendance. Next, the PIC briefed the copilot on mission and emergency procedures, including tail rotor control/drive failures. The PIC then completed the mission/aircraft computation card. At this point, the PIC was informed that the original mission was cancelled due to Small Craft Warnings in the Op Area and would be replaced by a Fam Navigation Flight. After a thorough preflight inspection, the aircrew manned the aircraft. The PIC took up residence in the left seat while the copilot slid into the right seat. Two crewmen manned the cabin.

Engine start and takeoff were uneventful. Once airborne, flight control and engine performance were thoroughly checked, and all systems were noted to be within limits. Training had been in progress about one hour and 45 minutes when the pilot was directed to return to base. It appeared that the H-53 would be needed for a ship-to-shore pax transfer later that day and would have to be reconfigured. With the copilot at the controls, a final approach was commenced at the northern VFR helo entry point. The copilot requested and received permission from NAS Tower to land at the approach end of runway 19. The copilot then called landing checks complete. Wind at the time was 360 degrees at 14 knots.

Noting aircraft traffic in the vicinity (an H-3 holding short at runway 19, an H-46 on the compass rose and a C-9 on final for runway 28), the copilot decided to perform a running landing. Although he had made this decision without consulting the PIC, the PIC was to later state that he realized what the copilot was going to do and had no reservations about making such a landing with a 14-knot tailwind.

Prior to crossing a road immediately adjacent to the approach end of runway 19, the copilot began to reduce airspeed intending to land with a relative headwind component and complete aircraft rollout before reaching the arresting gear located about 1,100 feet down the runway. At this time, the wind was 010 degrees, 14 knots, gusting to 19 knots. The H-53 crossed the road at an altitude of 200 feet, and the copilot commenced



his letdown. He immediately sensed a moderate rate of descent but felt it increasing as the approach progressed. The PIC stated that he considered the final approach entry to be normal. On commencing the flare, the copilot sensed the rate of descent increasing and applied up collective. This seemed to do nothing to decrease the rate of descent and the nose began to yaw to the right. The helo was now coming down like an express elevator. As the H-53 passed through the 50-foot altitude with full up collective and full left rudder, the aircraft continued to yaw right and descend rapidly. At 30 to 40 feet of altitude, the PIC took control of the H-53 as it continued its right yaw and high sink rate. With full up collective and full right rudder, he could do no more than try to level the helo. Realizing that impact with the ground was inevitable, the PIC pushed the nose over in an attempt to minimize damage.

The H-53 impacted the runway very hard, slightly noseup, slightly right wing down and 30 to 50 degrees right of the runway heading. No coning of the main rotor blades was noted by witnesses prior to impact. On initial impact, the starboard main landing gear collapsed, and the piston was propelled up through the sponson aft of the fuel cell, striking a main rotor blade pocket. The port main landing gear was torn from its mounting points. The aircraft bounced back into the air, stabilized momentarily, and then began to spin uncontrollably to the right. The PIC perceived a tail rotor drive failure and ordered the copilot to secure the engine speed control levers. The H-53 settled back to the deck, wings level and then rotated clockwise several times before finally coming to a stop on a heading of 350 degrees. During the last impact, the tail rotor blades struck the runway, and the tail section partially separated from the aircraft cabin. The PIC instructed the copilot to start the APP to restore electrical power and facilitate rotor brake shutdown. When the main rotor blades stopped turning, the aircrew egressed the H-53 without injury. The aircraft wasn't stricken, but it will take megabucks to restore it to its original condition.

At the time of the mishap, NATOPS performance charts indicated that with the aircraft's estimated gross weight (35,500 pounds) and current environmental conditions, the power required to hover out of ground effect in no-wind conditions was 44 percent less than maximum power available. A Sikorsky analysis indicates that a rate of descent of 1,182 fpm is required to collapse a main landing gear. The analysis also revealed that had the pilot not nosed the H-53 over at about the 35-foot altitude, the helo would have impacted the runway tail low at a vertical speed in excess of 2,300 fpm, and this would probably have resulted in serious or fatal injury to the aircrew. The H-53 approach sequence is illustrated in figure 1.

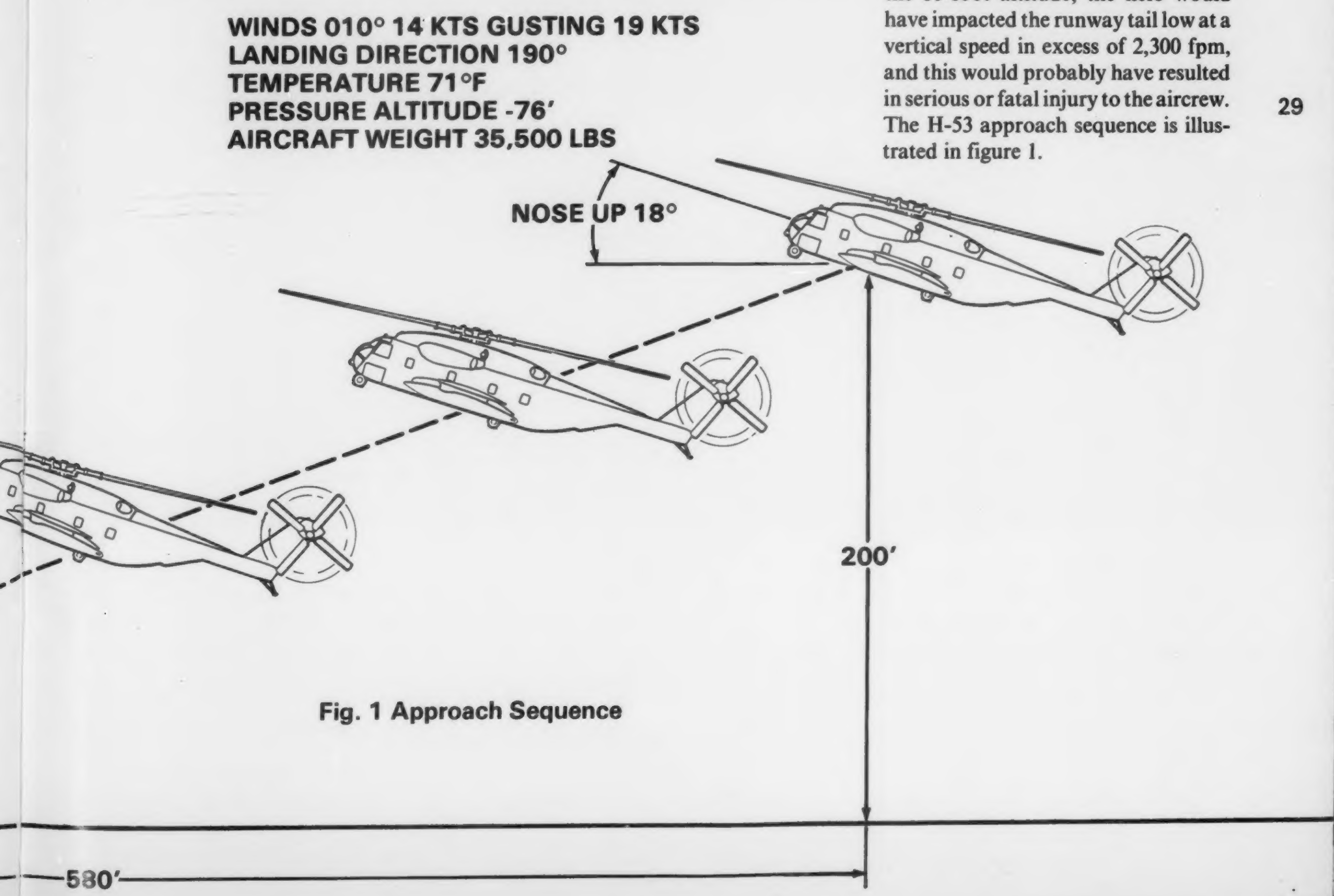
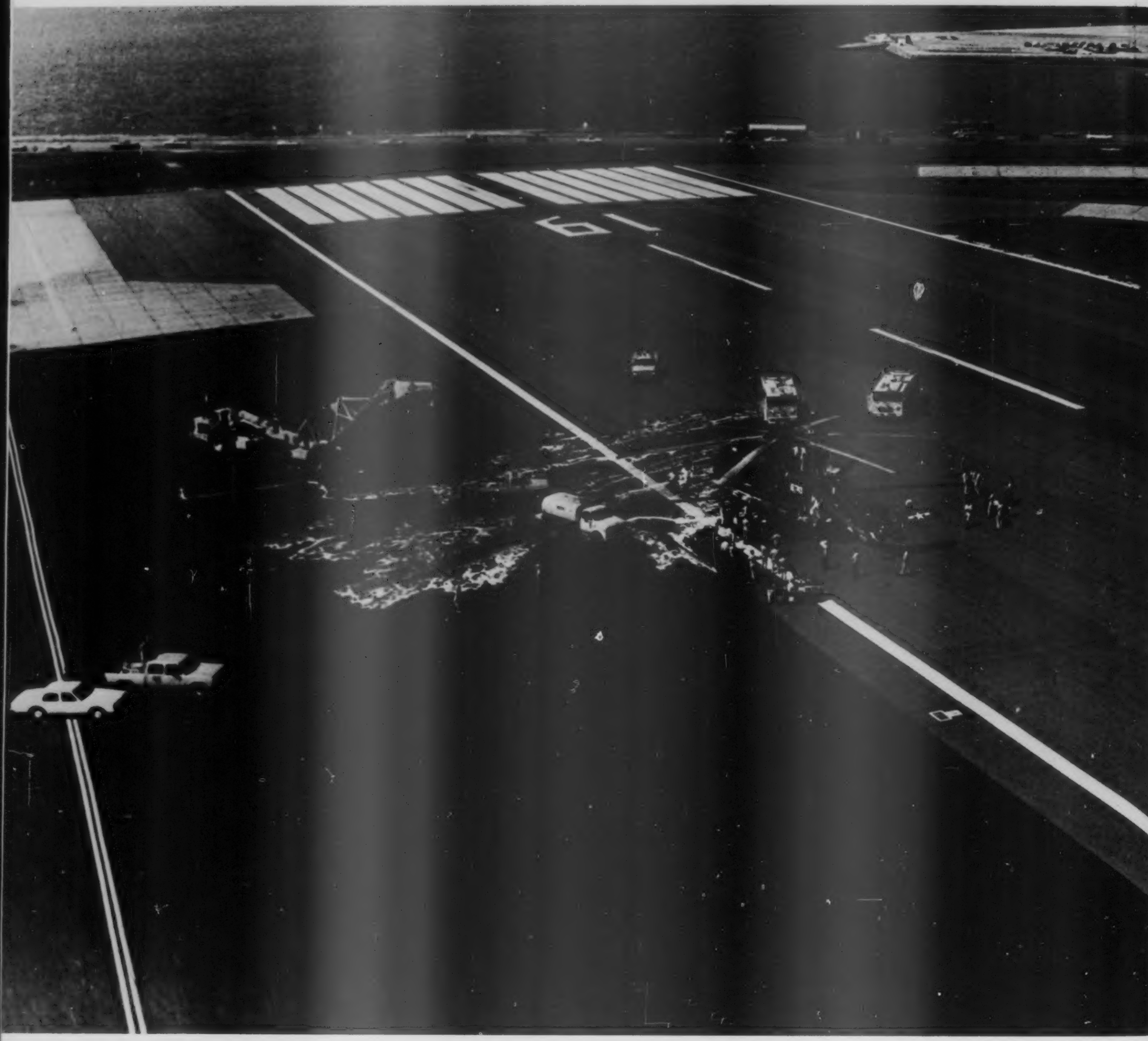


Fig. 1 Approach Sequence

APPROACH diagram by Frank L. Smith



The two factors contributing to this mishap were the actions, or lack of actions taken by the copilot and PIC. Let's examine them in detail:

The Copilot. First of all, the copilot was confused about the minimum altitude for commencing an approach to runway 19. He thought it was 200 feet, but in reality there was no minimum altitude requirement in effect at the time. The Sikorsky analysis indicated that the aircraft could and should have made a normal landing without a buttonhook (a 180-degree turn back into the wind). However, the existing tail wind left the copilot with little room for error. Computations revealed that power available exceeded power required by some 20 percent.

When the copilot commenced the approach at 200 feet and 60 KIAS, he had about 1,300 feet of clear runway available from the road bounding runway 19 to the arresting gear. He intended to reduce airspeed below 40 knots ground speed, touch down and complete the landing rollout before reaching the arresting gear. As the descent continued, the copilot realized

that the rate was becoming excessive. He pulled up on the collective and commenced a substantially greater flare than he had anticipated. This reduced forward speed, but the rate of descent could not be checked. Continued application of up collective led to a right yaw which prompted the copilot to respond with left rudder. The tail wind was really beginning to take its toll. At 30 to 40 feet, the copilot was pulling full up collective and full left rudder. The PIC took over at this point, leveled the aircraft somewhat as the H-53 impacted the runway.

The PIC. The PIC failed to recognize a potentially dangerous situation and take control of the aircraft in sufficient time to prevent a mishap. Earlier in the flight, he had made an into-the-wind approach over the numbers to runway 19, so he was personally well aware that alternate approaches to a landing were available. The PIC was also confused about the minimum approach altitude. The nose-high attitude of the H-53 during the approach attracted the attention of casual bystanders on the ground, but the PIC did not consider it excessive. As the aircraft came nearer to the runway, the excessive rate of descent was noted by additional personnel on the ground. Fortunately, the PIC did take control of the aircraft in time to nose it over and prevent a catastrophic mishap from occurring.

As we mentioned earlier, power available to successfully land the H-53 exceeded power required by 20 percent. Why then, with full up collective and full left rudder, could neither the rate of descent nor right yaw be controlled? There are two possible answers:

First, the lift vector produced through application of up collective during the flare was directed aft as well as up. Witnesses stated that the H-53 maintained a high nose attitude through the entire approach until immediately before impact. Thus, up collective enhanced the air/ground speed reduction, but did little to slow the rate of descent.

Secondly, the aircraft may have entered into power settling. This condition exists when the downwash from the main rotors recirculates up, around and back through the rotor disk. The helicopter then sinks into the airmass it has dispaced in trying to obtain lift. This causes the main rotors to work continuously in their own turbulent air, resulting in flight control ineffectiveness. The velocity of this airmass can become so high that full up collective will not produce enough lift and in fact, may aggravate the situation. All of the factors associated with this approach (200-foot altitude, 14-knot tail wind, attempting to get low and slow in a short distance) led to a high nose attitude to slow the airspeed, reduced collective to descend and a high glide slope angle. The right yaw, which could not be stopped, suggests that the tail rotor was also operating in a disturbed airmass and lost effectiveness. All indications are that power settling most probably occurred during the approach.

The PIC involved in this mishap was a highly experienced H-53 pilot. He held a position of much responsibility in his squadron. Perhaps his familiarity with the aircraft and its operation gave him a false sense of security. While tail wind landings are not prohibited in the H-53, good headwork should dictate that they be avoided whenever possible. This PIC stated that he'd done this (a 14-knot tail wind run-on) 500 times in the past and until the time where they started to lose the nose to the right, *"It looked like all the rest."*

There are two important lessons to be gleaned from this mishap. The first is that all helicopter pilots should ensure familiarity with the dangers associated with power settling and how to avoid it. We recommend an excellent article on this subject to you entitled "Settling Siblings — Helicopter Whoas!" which appeared in the December 1981 issue of *APPROACH*. The second lesson applies to all naval aviators — don't take yourselves or your aircraft for granted. No matter how many times you've successfully performed a certain maneuver, it's the one you're doing right now which presents a new challenge. *Be ready for it!* ◄

Immersion Hypothermia

Cubi Point, Philippines — I enjoyed your interesting common sense approach to the problem of immersion hypothermia presented in the above article. I have one comment to make: Pages 16 and 17 feature an artist's conception of a cockpit view of a P-3 ditching — but without helmets!! Not only are helmets required for the ditching evolution, but they will also be invaluable in helping to conserve body heat. Since the arterioles of the scalp do not constrict as those in the extremities, a great deal of one's body heat can be lost if the head is left unprotected from either the effects of convection due to contact with the air or from conduction due to water contact.

LCDR Donald C. Arthur, MC, USN
Cubi Branch Clinic

• Your point concerning the unprotected head's effect upon conservation of body heat is certainly true. The article did not explicitly discuss the importance of head-gear, although it did stress that "80 percent of body-heat loss occurs through the head and neck." The art accompanying the article depicted the immediate ditching of a P-3 during a low-altitude mission, in which the crew did not have the chance to don either helmets or anti-exposure suits. In a controlled ditching, helmets would be donned prior to *impact*. Thanks for pointing out an important omission regarding protective clothing.

NAVY LIFELINE Cancellations

Norfolk, VA — Because of budget restraints and a long-overdue distribution review, aviation squadrons will no longer automatically receive *NAVY LIFELINE*. This bi-monthly magazine contains articles about workplace hazards, motor vehicle safety and occupational health. To remain on the distribution list, send a letter or memo to Commander Naval Safety Center (code 71), NAS Norfolk, VA 23511. Include the number of people in your squadron and a brief justification of why you need or want the magazine.

Derek Nelson
Editor
NAVY LIFELINE Magazine

An "Airedale"

FPO New York — Let's clear the air! For sometime I have heard the term "Airedale" used; around 26 years to be exact. Sometimes used as an endearment, at other times it is something less. I am now serving with the "Gator Navy" and the term is used as a slur, so, when running across this definition I was elated. I am very eager to pass the word on to my fellow shipmates, wherever they may be.

1. Reference: BUSINESS DICTIONARY, Library of Congress Catalog Card No. 78-150232. Compiled by Lewis E. Davids, Ph.D. Hill Professor of Bank Management, University of Missouri.

A Business Dictionary is designed to clearly define special words and terms which are not commonly defined in regular dictionaries.

2. Definition (paraphrased): AIREDALE — Slang expression for a fast-moving, slick-talking, sharply dressed, high-performing individual normally associated with a highly flexible organization.

3. Commentary: "Call me an Airedale."

Paul R. Bohn
AMSC

New Crash Number

Norfolk, VA — There is a new Autovon number for the Naval Safety Center's aircraft mishap hotline: 564-2929.

Notice

COMO Jerry C. Breast has assumed command of the Naval Safety Center.

His most recent assignments were as Commanding Officer of USS INDEPENDENCE (CV 62) and USS SAVANNAH (AOR 4).

COMO Breast flew 336 combat missions over the Gulf of Tonkin and North Vietnam during three deployments between 1967 and 1973. Afterward, he commanded Attack Squadron EIGHTY-TWO out of Cecil Field, Florida. He served as Operations Officer and Executive Officer of USS AMERICA (CV 66) before reporting to the Pentagon in 1978 as Program Sponsor for the F/A-18 preproduction development and testing.

Life Support Equipment

San Francisco, CA — We greatly enjoyed your informative article on life support equipment on page 26 of the April 1983 *APPROACH*.

After studying the back cover of the issue we can surmise, however, that your photographic files are sorely depleted of aviators in proper flight gear. We cannot believe that a staff as fine as yours would use a picture with so many obvious discrepancies, unless you either had no other pictures available, or this was designed to coerce us sharp-eyed fleet naval aviators into a contest seeing who could discover the most discrepancies.

If this was a contest, the following is VAQ-133's entry:

a. Leg garters are illegal, the top garter and connecting straps are cut off.

b. No oxygen mask protective bag.

c. Strap holding oxygen mask to torso harness.

d. The web strap on the D-ring is apparently routed through the body of the ring instead of the proper slot.

e. The SV-2 strap is apparently not correctly adjusted, as it is hanging loosely.

f. An LPA vice LPU is being worn (no beaded handles).

g. Sleeves rolled up (did he go flying like this)?

If this was simply a lack of suitable pictures, the "World Famous WIZARDS" of VAQ-133 have decided to ensure that you will never be put in this embarrassing position again. Enclosed are five pictures of WIZARDS attired in proper life support equipment.

Keep up the outstanding work.

By the way, if this really was a contest, what do we win?

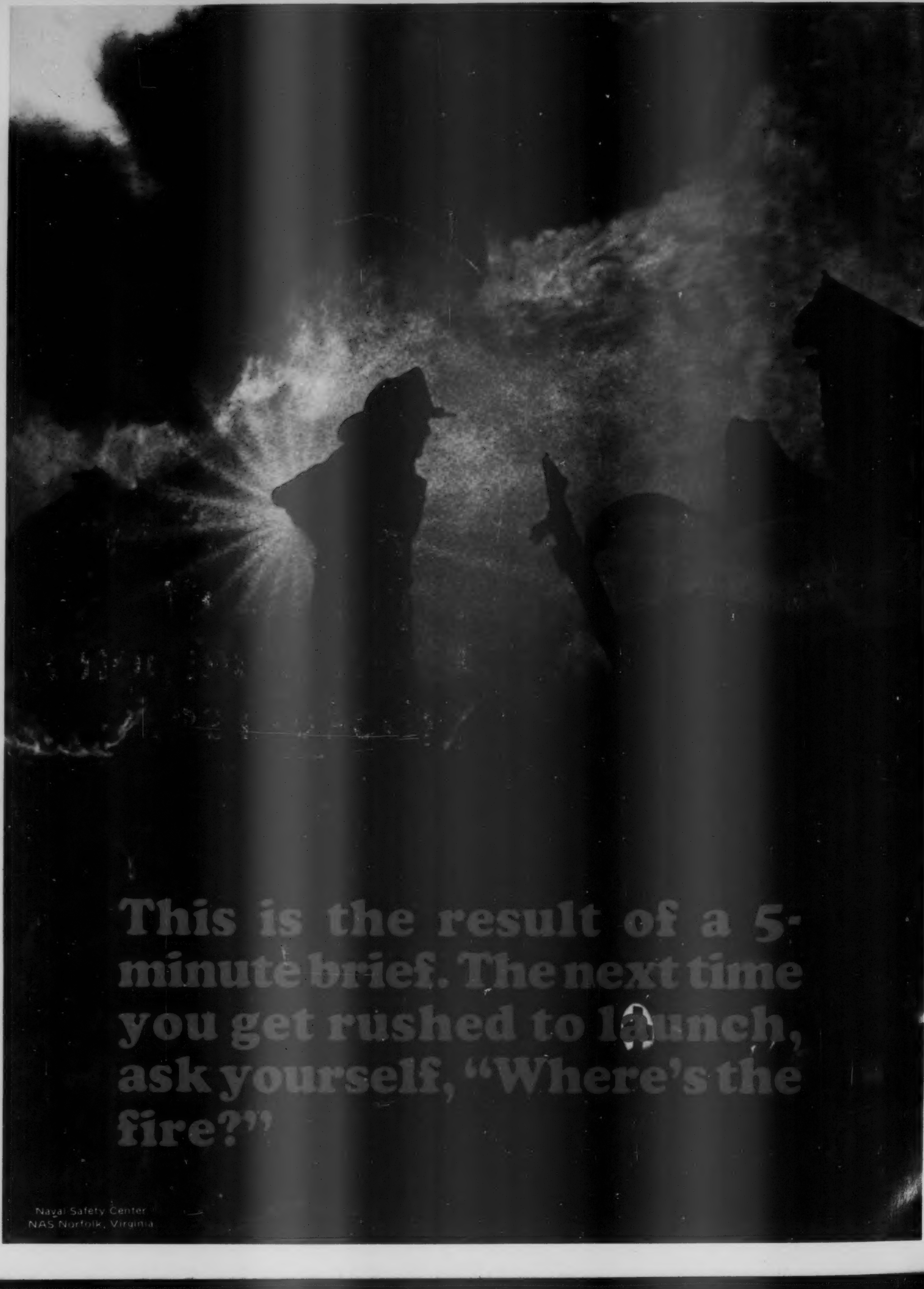
W. P. Gray
CO Tactical Electronic Warfare Squadron
ONE THREE THREE

P.S. I personally agree with the "Jolly Rogers" in the modification of the Martin Baker leg garters and the uselessness of the O_2 mask cover but only when they become legal for our use.

• You are absolutely correct on points "a" through "f." However, I know of no rule against having sleeves rolled up in the readyroom. If you wanted to be that picky, you should have pointed out that the aviator in the photo isn't wearing a helmet or gloves either. This was not a contest, nor are our photo files depleted. It was intended to be a candid shot of a fleet aviator rather than a posed pilot modeling flight gear. The discrepancies should have been noted though, and we thank you for pointing them out. Even though there was no contest, you are a winner because you are doing it right.

B.C.

One drop can do you in if you don't know emergency procedures.


This is the result of a 5-minute brief. The next time you get rushed to launch, ask yourself, "Where's the fire?"
Naval Safety Center
NAS Norfolk, Virginia